

Finance's role in public sector transformation

Building partnerships, skills and supporting digital programmes



Introduction

Driven by a raft of changes, the role of the finance leader in every sector is transforming, but perhaps nowhere more than in the public sector.

In the public sector pressures have been dominated by the need for efficiency and higher productivity, along with careful re-prioritisation in the face of cuts. Suddenly there is a heightened focus on business cases for projects, commercialisation, modernisation and the opportunity of digital transformation. Yet many public services are struggling to keep pace and to find the breathing space to allow for the redesign of operating models. Legacy constraints and the risks of change can become a brake on vision and ambition in these difficult times.

Steering a course through such a period requires skills and experience in resource management, business leadership, risk control and a vision of business-wide change. By their nature and experience finance leaders have a clear part to play in this navigation, ensuring that public service bodies remain sustainable in the face of further cuts and change.

To do this well they need more than a traditional finance background. This includes understanding what 'digital' means for their organisation, how digital risks can be managed, and the expected benefits delivered.

It also depends on a range of new techniques and practices in data science, cyber risk and digitally-based commercial delivery.

These are all topics which CIPFA is prioritising for its members, ensuring that they and their organisations are fit for the future, and ultimately can protect and develop resilient and efficient services for citizens. We are delighted therefore to endorse this joint research between CIPFA and Eduserv, looking at the changing role of the public sector financial leader. Not only does this research tackle the skills, experience, and the role of future finance leaders, but it does so from the perspective of financial professionals who are in the thick of the challenges facing the sector and who need to be at the very centre of decision-making.

If there is one key message in this report, it is that the finance leader is vital for the future of public service organisations, but also that more needs to be done within the profession and sector to fulfil that potential. Those organisations that heed the advice in this report will be best placed to tackle the challenge and realise the benefits of digital transformation.



Jude Sheeran,
CEO of Eduserv



Rob Whiteman
CEO of CIPFA

Executive summary: The changing role of the finance leader

The role of finance has always undergone constant change, but today this is happening faster than ever because of wider organisational developments, such as:

- Digital operating models that create new vulnerabilities alongside business opportunity
- Greater automation and self-service, reducing the scope of manual intervention and oversight
- Automated supply chains and digital procurement
- Distributed solutions for resource management, making resource tracking and value measurement more difficult
- New IT developments, such as AI and cloud computing, making data flows complex and risks of abuse potentially higher
- The emergence of data and information science that builds new value opportunities but requires new skills to harness that value
- Growing challenges for auditors in validating risk, asset control and business performance

This joint research report by CIPFA and Eduserv examines the impact of these changes on the finance profession as a whole, and on public sector finance leaders in particular. It considers the main digital trends affecting finance functions, including some of

the newer technologies such as AI and Blockchain. It also looks at the changing nature of public services, such as greater commercialisation, as some local councils aim to become grant independent, by securing new income from developing new services and by maximising existing revenue streams.

The research in this report emerges from a survey and interviews with over 230 CIPFA members. This was accompanied by qualitative research from two round table sessions in London and Stafford and numerous discussions with professionals working with CIPFA and Eduserv.

It examines in particular how finance professionals view their organisation's progress with digital strategies and transformation needs and whether or not the full potential is being reached, either internally or externally.

Finance teams and digital transformation: research findings

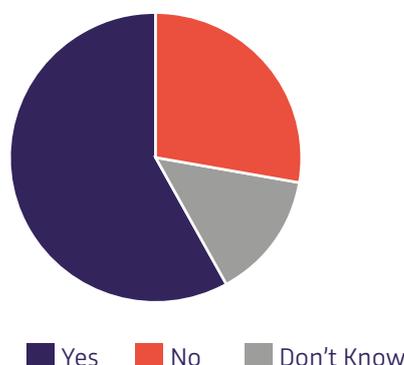
We asked finance professionals how they rated their organisation's approach to digital transformation and what role finance teams should play. Here are the four key themes emerging from our research:

1 Digital public services: most organisations have a long way to go

The majority of organisations have plans in place for the delivery of digital public services but only a minority are committed to truly digital operating models

- Over 58% of public service organisations have a digital strategy
- Less than a third of the organisations surveyed had a 'digital first' approach in all new initiatives, programmes and service plans (28%)

Does your organisation have a digital strategy?



What in your view are the biggest barriers in your organisation to successful digital delivery?

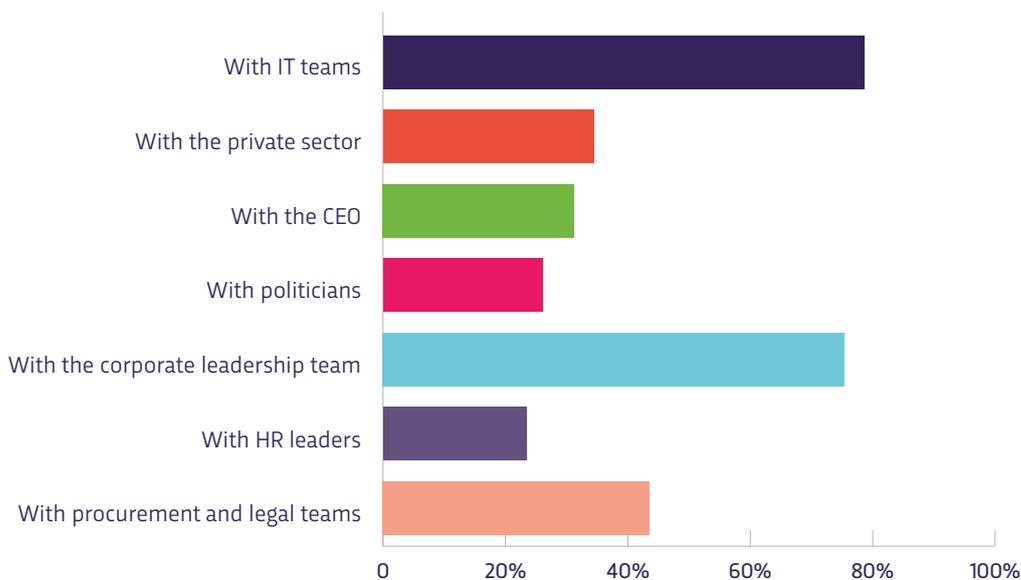


2 Digital leadership: most organisations need a clearer vision for the future

Although many organisations have plans in place for digital transformation, many still lack a deeper understanding of what that means in practice and do not have leaders or wider digital capability in place to take their organisation forward:

- Only one third of finance leaders think their leaders truly understand and support the implications of digital transformation
- A similar minority (36%) have a head of digital or equivalent to lead digital activities
- Barely one in ten (13%) PSOs have a digital strategy that is fully resourced

Where should finance professionals build alliances to increase the effectiveness of digital applications and project management? (Pick top 3)



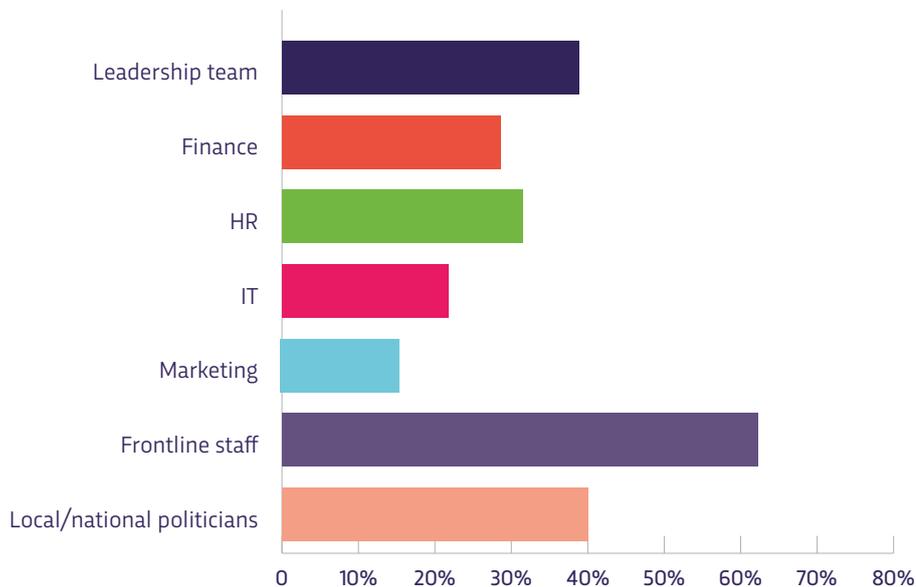
Research findings:

3 Finance teams: most have a strong understanding of the digital opportunity

There is a good baseline understanding among finance teams of how digital transformation can support better public services:

- Over 80% of finance leaders see the benefit of digital transformation for improving public services
- The majority also recognise that digital transformation is about new ways of working and not just technology (64%)
- Other teams can sometimes lack understanding of digital change programmes

What in your view are the biggest barriers in your organisation to successful digital delivery?



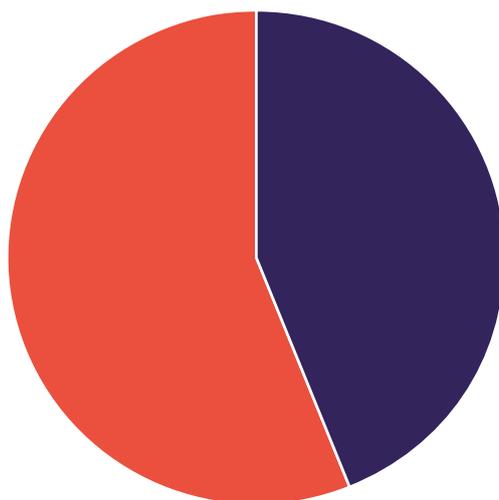
4 Finance teams: strongly placed to lead on digital transformation

Through a wider offering of professional development, finance leaders can use their business perspective and the knowledge of their organisation to lead a strategic digital transformation.

- Only a minority of finance professionals describe themselves as 'digital experts' – a mere 14% but most say that outside of the digital or IT team they have the best understanding of the need for digital transformation (75%)
- A clear majority (78%) of finance professionals say their skills would help ensure 'digital change projects' were more realistic. They believe that they should be involved both in the development of digital strategy and as a business partner in delivery - over and above traditional accountancy roles
- Already, nearly half of finance professionals (44%) have some sort of role in digital projects or strategy development

Are you directly involved in digital projects or your organisation's digital strategy?

■ Yes ■ No



Understanding digital transformation and the role of finance leaders

Key message:

Using an agreed definition of 'digital transformation' in terms of wider organisational impact, will assist finance leaders in engaging in strategic conversations with leadership teams and the whole organisation.

Successful digital transformation depends on a combination of effective digital leadership, wider organisation engagement, insightful risk management and a joint approach across professional areas to remove obstacles that inhibit change.

Defining digital transformation

'Digital' is a fashionable term, often added to anything that used to be called 'IT'. Without a definition of what 'digital' means for an organisation, it remains little more than a label, and 'digital transformation' typically then gravitates to become an 'IT' project. This is particularly true if digital change is left to the IT department or an external technology supplier, since the real impact is on the business of delivering public services.

'Digital', and therefore 'digital transformation', is about business change, and the technology is just an ingredient. It typically requires change across the whole organisation starting with a reassessment of the potential of technology to transform working practices, cultures and governance, with corporate strategy re-alignment.



We [Essex County Council] have stopped using digital as a term in isolation, instead using Digitally Enabled and Technology. We've also set up a Technology Steering Board – and have finance sitting on that as a member.

Stephanie Mitchener, Head of Finance at Essex County Council

Digital transformation is more than a modernised website, unified communications, a new CRM system, a Facebook profile or giving employees iPads. Digital should fundamentally change the way that organisations design and deliver services and how they operate internally.

It carries with it new risk and uncertainty, that is hard to define or measure precisely in advance of a digital programme. This need for a degree of risk tolerance can be culturally challenging, particularly for some finance

roles where success depends on securing precision, measurement, control and order.

Finance leaders need to consider which control and practices in their own teams should be re-evaluated from a digital perspective: from finance regulations and policies, to standing orders orders on contracts, internal financial reporting, and operational financial support activity. These can inhibit or support appropriate digital innovation.

The contrast between digital and pre-digital culture

| Pre Digital Culture: | Digital Culture: |
|---|---|
| 'Command and control' | Leadership, not management (or supervision) |
| Pre-defined outcome and performance metrics | Performance measures subjectively set against outcomes |
| Staff earn the right for freedoms | All employees are expected to be flexible (and have this as a right) |
| Control marketing and message from the centre | Messaging is everyone's responsibility (e.g. social media) |
| Board decisions delegated | Decisions are delegated up and down, aligned to business priority |
| 'Baronies and silos' dictate power base | Corporate means corporate – silos disappear into cross-cutting themes |
| Rewards based on budget and resource responsibility | Rewards focus on innovation, change delivery, foresight and experience |
| Traditional skills more highly valued than tech/digital knowhow | Digital skills prioritised for all and the Board sets the lead |
| Inherently risk and change averse: "if it ain't broke...." | Encourages appropriate risk, innovation, change, experimentation |
| Cumbersome decision-making based on reports | Decision-making is simple and shortened – empowered employees |
| Feels out of touch with technology and IT, fearing its impact | Understand the impact and potential, if not necessarily the tech |
| Delegates 'digital' and IT below other resource leaders | Treats IT and digital as a board level topic, with single board level oversight |
| Digital is often simply seen as 'better IT', or a separate strategic plan | Digital is well-defined and is part of every strategic plan, not separate |



Making tech work for finance – heart of England NHS

In many public sector organisations, the emphasis is often put on the service experience. Making service delivery more effective, streamlined and easier to access is a good way to show stakeholders and investors that funds are working.

The reality is that, with sophisticated technologies, any organisation can improve efficiencies in its finance department. It is possible to move from manual paper driven processes to automated digital ones and change processes that would often be difficult to achieve without technology.

What's clear is that digital technology is increasingly making its way into the finance world. The so-called robots won't steal jobs – rather, the roles of finance professionals will evolve for the better. At the former Heart of England NHS Trust, Moira Day explains how this financial change has progressed over the last 10 years:

“Looking back, the impact of digital transformation internally has created a lot of change for the better. When our digital strategy was created, the finance team looked for ways to shorten the timeline for creating budget reports, modifying what goes into the reports, and how they are delivered.

“When I first started, these reports could take days to create, were delivered by post in hard copy and review could take even longer. As technology allows an ever-reducing time frame, we now store

our ledger in a data warehouse which is updated online, and can produce reports in near real-time.

“As a result, our organisation takes transactional data and processes it in a meaningful way. The report is still produced but the finance team can provide more analysis, using their skills to enhance business propositions and decisions.

“The next step is to develop an IT solution to our current forecasting model. This will enable us to devote more time to remedial action plans and influencing behaviours rather than the production of the numbers.

“Key individuals in the team see opportunities to make the department more effective. Giving those individuals, especially in finance, the tools to come up with new ways of working to enable the focus to remain on value added activities.”

Heart of England NHS Foundation Trust was acquired by University Hospitals Birmingham NHS Foundation Trust on 1 April 2018, to create one of the largest trusts in the country, employing more than 20,000 staff.

Moira looks forward to seeing how a new digital strategy will be implemented in order to better serve the new, enlarged organisation. “Our employees will definitely be part of the process as we develop a new strategy going forward.”

Strengthening the basis to be ready for 'digital'

Key message:

Careful planning is needed for a successful digital programme, especially in terms of the business case and early steps. Finance leaders need to contribute directly in ensuring solid foundations are in place before a programme starts.

However sophisticated digital solutions become, there will always be a need to ensure value for money, accountability of resources and assets, management and detection of the risks of fraud, and that fall to the finance professionals.

So, whilst finance professionals need new skills to keep pace with digital development, these must work alongside traditional knowledge and experience. Financial support must therefore be able to span new and legacy practice, through a transitional period to full digital operation. Early intervention and removal of IT legacy constraint are particularly important for finance teams.

"Legacy IT constraints that exist in most public service organisations can cause a problem," noted Harvey Durrant, Head of IT at Devon and Somerset Fire and Rescue Service. These might be caused by out-of-date systems, inflexible outsourcing contracts, IT policies designed for a previous IT era, non-agile working methods or shortfalls in both IT capacity and skills.

These make significant calls on money and business cases for modernisation that turn 'digital' into an IT improvement project.

Implementing digital change

'Digital' is about more than implementing innovative technology, automation, self-service, faster and cheaper IT deployment. In fact, it is less about changing the IT than it is about changing everything else, starting with a vision of what digital will mean for users, whether they are customers, citizens, politicians, employees, suppliers or partners.

This wider organisational change is not easy to realise, if it was, there wouldn't be so many consultants offering help or

Nearly two thirds (64%) of finance professionals feel that digital transformation is less about IT and more about changing ways of working.

so many digital projects that struggle to fulfil their over-developed ambitions. But finance professionals are well-placed to assist, because of their deep understanding of risk, resource control, business process and project methods.

'Digital' implies an operating model that is light on bureaucracy and governance, empowers employees and is in touch with technology risks. That requires effective risk and resource control.

This is relatively easy for a start-up business, compared with a complex and more traditional organisation such as a local council, a health authority or a government department.

In the public sector there are typically more interactions between related services, complex data linkages and deeply embedded practices dating back a generation. Coupling this with a low appetite for risk in the face of public and press scrutiny, internal politics and severely constrained resources, and the challenge for the public sector is perhaps unprecedented.

Leadership from financial professionals is an essential part in this journey in areas such as risk modelling, resource allocation, business case development, prioritisation and corporate alignment in securing valid benefits realisation.

Here are 8 tips on how to prepare for a successful digital programme:

| | Digital step: | Tips on what this means: | What to avoid: |
|---|-------------------------------------|---|--|
| 1 | Corporate strategy alignment | 'Digital' needs to be defined: how will the organisation function in the future? Where do policies, approach to risk, priorities, governance, traditional spans of responsibility and roles need to change? Every service plan should have a digital component reflected in a corporate digital plan. | A digital programme that is a 'bolt on', with few connections to overall corporate ambition risks 'digital' becoming an 'IT plan', and staff will not understand what it means for them and may not therefore truly commit to change. |
| 2 | Create digital foundations | Digital architectures, principles, and prioritised programmes need to be in place and resourced. CEO leadership of the digital journey is essential, with effective communications, a network of 'digital champions' and political support. | Digital is a whole-organisation change. Directors will need to cede sovereignty and take on cross-cutting digital accountability. This can be uncomfortable, and it can become tempting to slide back when the going gets tough, or if the digital foundations fail. |
| 3 | Redefine IT strategy | IT strategy must include prioritisation based on digital outcomes, with business cases aligned to digital outcomes (not just about IT costs and savings). An assessment is needed of IT legacy constraints and how these will be dealt with (and in what order) is required. | It is easy for IT to become a blocker to digital transformation – lack of IT skills/capacity, costs of change, fear of existing systems collapsing. Organisations need to support IT change to enable digital, confronting outdated practice or vision. |
| 4 | A digital plan | There needs to be a high-level digital delivery plan, corporately agreed and resourced, connecting short, medium and long-term ambitions. This includes agreed business cases, benefits realisation plans, change management structures and resource allocation. | A series of unrelated digital projects will not deliver wholesale change, even if they feel 'safer'. A short-term planning horizon can identify quick wins and encourage cultural and behavioural change alongside but as part of a broader vision. Dedicated and high-performing staff are needed to do digital well. |

continued overleaf...

| | Digital step: | Tips on what this means: | What to avoid: |
|---|---|--|--|
| 5 | Build a business case | A business case for a digital programme is hard to develop because of the range of uncertainties and intangibles (such as cultural and behavioural change elements). Traditional return on investment (ROI) may need adapting with traditional budgets pooled, and an acceptance of risk as well as a holistic approach to savings and benefits. Build in small steps and use agile methods to adjust as a programme develops. | Don't build a business case for digital change that is over-ambitious, listing benefits that cannot be measured, or that contains a mix of indirect and direct savings muddled together. This results in poor benefits realisation or savings that don't materialise, undermining digital value. Avoid an 'IT business case' – with spend and savings primarily in IT. |
| 6 | Employee buy-in and communications | It is not hard to sell a digital vision of how things will improve – there are many benefits. However, this requires willingness to change operating models not just in IT. HR need to take the lead in setting up a network of digital champions, advocates, communications plans and leadership skills across the organisation. | Successful digital programmes need strong and open communications of the digital purpose, challenges and approach, heard consistently from all directors and the CEO. Limiting communications because of uncertainty or risk can result in slower progress and corporate 'drag'. |
| 7 | Culture and behaviours | Digital change is less about the IT than it is about changing culture and behaviours. This is why a definition of 'digital' and its impact on working practices is so important. There is a role for HR in embedding this new model of working in governance and performance systems. | It is tempting to overlook this aspect as 'too hard' to define, or 'self-evident' in a digital change programme. Avoid seeing digital literacy as being for the IT people or those who are heavy IT users – it impacts everyone. |
| 8 | Building skills, capacity and risks for sustainability | Over time, a digital PSO will adopt a new structure of operation: matrix management, cross-cutting performance and reward systems, and risk modelling. Everyone will need some new skills and must take responsibility for digital success. | Retaining traditional structures and reporting lines hold back digital progress. The same applies to traditional performance, rewards and remuneration systems based on size of team or budget. Challenging these practices is hard and will be resisted by those with vested interest but can signal the appetite for real change. |

The business case

It can be tempting to rush headlong into a digital transformation programme, with the apparently rich return on new technology investments that empowers the workforce, replacing costly and restrictive IT legacy constraints.

The benefits need the voice of reason and challenge, which often falls to the finance teams:

- Defining purpose and outcomes in terms of measurable corporate priorities
- Ensuring a firm understanding and quantification of risks and potential impacts, including costs of transition to a new model of working
- Building a solid business case that separates hard and soft savings – those that are ‘real’ and those that are more aspirational or implicit.

There are number of challenges facing finance leaders in supporting the development of strong business cases for digital programmes:

- Risks and benefits are hard to quantify, often with the ‘soft’ financial returns seemingly outweighing the easier to quantify cashable savings
- Many digital solutions have a lower capital requirement but increased revenue costs over time (such as in cloud models) which is harder to justify in a climate of revenue expenditure constraints
- The pressure to just spend money on new technology can be enormous.

There is sometimes a perception within the business that a ‘capital vs revenue’ challenge is a blocker in moving from legacy IT, where past upgrades are based on capital that reduces revenue, fitting with the financial pressure facing public services but new IT such as cloud requires revenue and less capital.

However, finance leaders we consulted with were clear that accounting methods do not hamper adoption of new technology solutions such as cloud. They believe that IT and finance teams need to work together and build the right business case and investment structure for digital programmes that ensure best value in a highly cost-constrained environment.

“

Digital transformation was seen as ‘a necessary’ to help reduce cost and resources of the finance function, but digital transformation needs to be constant to get the ROI and improve financial services. It is down to the finance team to make the case for digital transformation through robust business cases and support from other corporate functions.

Tim Wheelhouse, Finance Functional Lead at the Home Office

These issues have also been covered in previous CIPFA reports, such as ‘Accounting for the Cloud’ in 2017, advocating ‘whole life costing’ for digital solutions, to allow the proper option appraisals and comparisons to be made between capital and revenue-based procurements. This also ensures the public sector can procure digital services rather than IT capital assets. Finance leaders will, however still need to consider whether there are intangible assets in these digital services, such as cloud computing and robotic automation.

Given the delivery problems that some digital programmes experience, especially in parts of the public sector, a careful analysis of the financial risks and returns of any digital programme is essential as part of a business case (see box: examples of benefits from digital programmes). There can be a challenge in establishing which savings and benefits are truly ‘cashable’ and which are unlikely to result in bottom-line budget reductions but may still hold intangible value.

| Type of benefits: | Examples of benefits from digital programmes: |
|--|--|
| Cashable staff savings | <ul style="list-style-type: none"> ■ Reducing headcount or releasing capacity, from improved productivity and reduced service demand resulting in the need for few staff. ■ Removing layers of management and administration from self-service internally and for citizens. |
| Other cashable savings | <ul style="list-style-type: none"> ■ Reduced use of services or physical resources – e.g. supplier costs, travel, paper, admin, communications, post and buildings. ■ IT costs savings from replacing overheads of legacy systems and practices. ■ Shared services and partnership working that reduce the need for physical assets. |
| Non-cashable service improvement benefits | <ul style="list-style-type: none"> ■ Motivated and digitally skilled staff can lead to faster and more responsive services. ■ Non-cashable productivity improvements, such as 'right first time'. ■ Service quality improvements: e.g. in what is delivered or how it is delivered, such as early intervention, easier access and demand management or avoidance. ■ Services are more targeted, responsive and individually designed for groups and individuals. |
| Other non-cashable benefits | <ul style="list-style-type: none"> ■ Better joined-up services: e.g. in ways which are meaningful to service users, across service providers, including greater use of self-service for staff, suppliers, partners and customers. |

The rigour required should be standardised in business planning, avoiding over-stating the likely cashable savings. Therein lies a corporate need for finance teams to support the whole organisation in standard digital business case models, from small works to large transformation programmes.



A digital strategy team can allow teams to make digital decisions together, encourage systems to talk to each other and improve user experience.

Moira Day, Divisional Finance Manager at the Heart of England NHS FT

Creating a delivery plan

Building a credible delivery plan for a cross-cutting digital programme usually requires finance teams in particular to ensure that a balance is struck between trying to ensure every risk and cost is identified and the benefits realised. However, it is important not to start before the groundwork of preparation for change has been completed.

PSOs should examine their starting position, capacity, capability and priorities to identify the most promising areas to start: those with lower risks, higher volumes and with more certain ROI value. Early projects need to set the example for cultural change and be seen to deliver tangible and predicted business value before more complex and risky transformation is attempted.

Finance leaders we spoke with agreed that starting small where possible, and then growing, helps to avoid over-engineering or over-ambition and create confidence in digital potential. For example, this could include having an overall plan of action which prioritises some 'quick wins'.

| | Short term (< 6 months) | Medium term (6 - 12 months) | Longer term (12 + months) |
|-------------------|---|---|---|
| Business Strategy | <ul style="list-style-type: none"> ■ Establish business case and target operating model ■ Set up governance ■ Enable work streams ■ Agree digital principles and priorities | <ul style="list-style-type: none"> ■ Complete delivery of key early projects which create momentum, establish value and create early cashable savings | <ul style="list-style-type: none"> ■ Delivery of the more fundamental and complex services changes in digital transformation programme based on best practice |
| Enablers | <ul style="list-style-type: none"> ■ Review where corporate services need to make an active contribution to digital ■ Complete assessment of IT readiness ■ Carry out consultations and comms plan | <ul style="list-style-type: none"> ■ Delivery eLearning platforms and develop new skills ■ Replace or upgrade key IT architecture components ■ Change HR policies and practice ready for digital | <ul style="list-style-type: none"> ■ Likely fundamental change to structure and governance and complete self-service for partners, staff, citizens and suppliers based on new digital services |



Delivering digital services centrally and saving £6 million for three borough councils – shared digital services in Camden, Islington and Haringey

Shared Digital is a joint service provided by Camden, Haringey and Islington councils providing digital support across all three regions.

The decision to merge digital services came from early discussions between the finance teams of Camden and Islington in 2016. Haringey came on board slightly later and the result was an ambitious programme of change, potential saving £6 million a year across the three boroughs. The costs and savings of the project are shared equally between the three boroughs.

Mike O'Donnell, Executive Director Special Projects for Camden Borough Council said, "Shared Digital enhances our services to residents and save costs. More importantly, the shared service delivers a large scale programme of digital transformation".

Shared Digital uses a wide range of technologies to conduct their business as efficiently as possible to deliver enhanced digital services for their residents. These range from websites and apps to assistive technology, as well as newer platforms that enable staff to work on the move, saving time and money.

The early wins were noticeable from the start and involved a positive mixture of better procurements, leveraging spend of the larger shared service, and a larger budget. The latter meant there could be more thought around data and information security across the three boroughs.

Mike went on to note, "The Shared Digital team are more than just the ICT team and they can provide a wide range of knowledge. It's not just about setting up laptops but also about expertise around digital transformation across the councils."

Now housed in Camden Borough Council, the Shared Digital service is seen as a shared endeavour and a shared governance.

"The key", Mike states, "is to make sure from the beginning that there is alignment of objectives, the level of ambition is the same and that you have strong political support and sponsorship across all areas joining. Make sure you have a solid business case and understand all the financial and non-financial implications of the merger.

"Change management plays perhaps the most important role in creating a successful shared digital service. The second being the management of legacy systems. Having early conversations, mapping the systems and understanding the gaps help to move forward in an efficient way.

"Of course, the digital transformation is important. But what we are really talking about here is business cultural change and most importantly, acknowledging the risk that anything 'shared' can feel distant in its delivery."

From a finance department perspective, Shared Digital required quite a bit of expertise from the finance division in order to have a strong enough business case, understand all financial savings and implications and, most importantly, see the long-term commercial gains.

The use of digital tools and practices within the finance function and how these are changing the role of finance professionals

Key Message:

The impact of digital services models and their growing complexity require finance professionals to have a new approach to data audits, risk management, asset value, and support for commercial delivery.

Managing changing corporate risk

Finance leaders have a wide range of priorities to help ensure their organisations run smoothly and that resources are well-managed. One of the most important is the contribution to managing corporate risk.

Digital transformation programmes introduce new risks, and many PSOs are now seeing 'cyber', 'IT' and 'digital' risks in the top few categories in the corporate risk register. As technology is more widely used and relied upon, replacing traditional skills and practice, the 'risk probability' increases, and the impact or risks materialising can be catastrophic. Corporate IT failure alone can paralyse an organisation within minutes and the impact of a cyber-attack or data breach can affect public safety as well as damage its reputation.

For finance leaders these risks need sufficient attention, alongside the more traditional risks management topics still facing public services, including 'acts of God'.

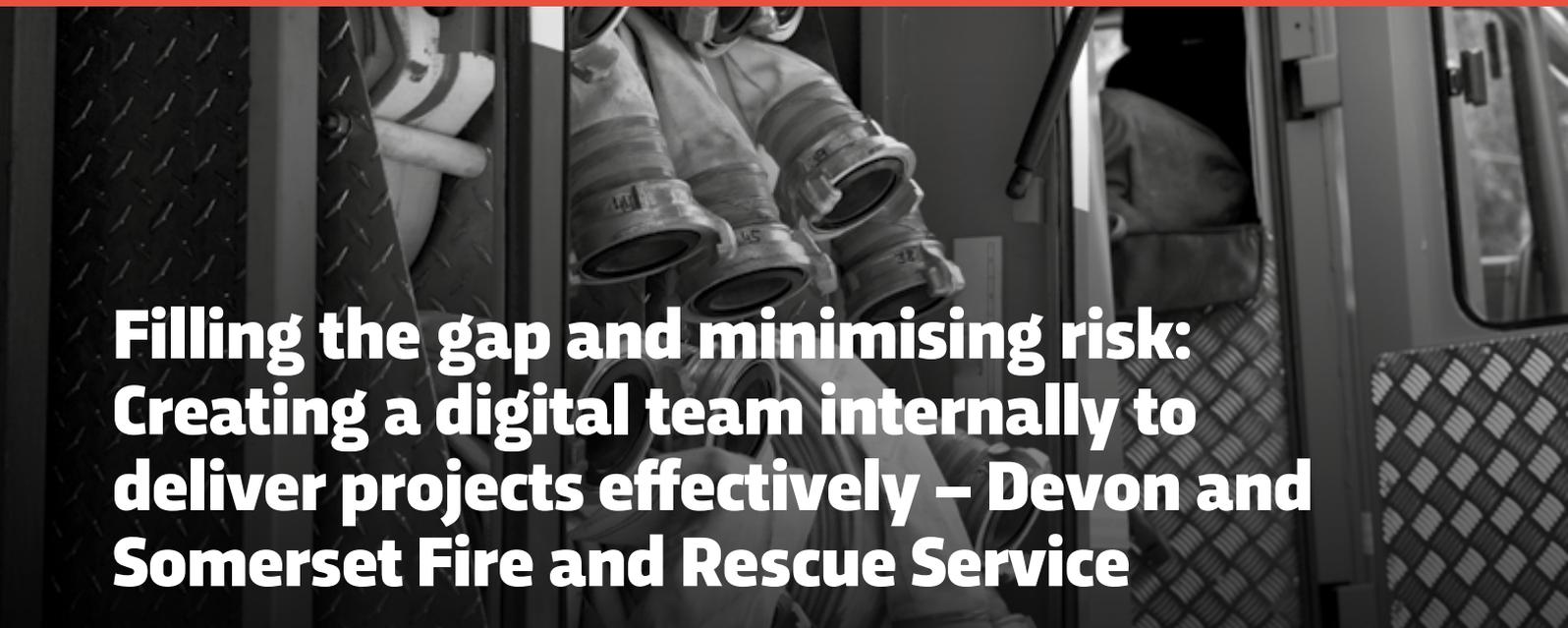
Succumbing to the hype of technology pundits and suppliers about how easy new technology will be to deploy, or believing that by adopting 'agile' methods risks will be well-managed, would be unwise. Political pressure also needs to be managed with care, since many digital transformation programme promises can offer headline-grabbing opportunities.

There is an important role for finance professionals in their organisations to examine what could go wrong in digital developments, with 'pressure-testing' and

constructive challenge before release of new service designs and automated processes.

Carefully constructed test plans are essential, with the necessary tools to dry-run of new processes, and to check scalability, data quality and migration plans. This is more complex in a digital model than traditional IT upgrades and systems acquisitions requiring a real understanding of the impact of digital change from a delivery perspective, such as in designing the security interface, disaster recovery and business continuity planning.

Whilst these are in part IT activities, the focus on wider business risk, and the mitigations and quantification of that risk, should form part of the business case with independent scrutiny which can typically best be provided by finance teams.



Filling the gap and minimising risk: Creating a digital team internally to deliver projects effectively – Devon and Somerset Fire and Rescue Service

Devon and Somerset Fire & Rescue Digital Transformation: An Internal Delivery Strategy for Change

In 2014, like many other PSOs feeling the constraints of ever-tightening budgets and reduced revenue streams, Devon and Somerset Fire & Rescue found themselves struggling with legacy IT, limited capacity software and a pessimistic view of the ICT internal team.

Harvey Durrant, Head of ICT at Devon and Somerset Fire & Rescue states, “The total ICT spend across Fire Services is not a huge market place and many companies try to shoehorn products in that simply do not fit. We were looking for a holistic, truly digital, agile approach that worked for Fire Services in particular. Nothing in the marketplace worked the way we wanted.”

Harvey decided to look at the internal ICT team to see if they could create the capability in-house. At the same time, the legacy IT (IBM software) was due for renewal and the new costs to sign on were going to increase.

What the ICT team created was a single sign on, mobile internet (MI) integrated, performance management, cloud-based system for integration.

In order for this to happen, a new ICT development team was created and it's first action was to completely close for a month-long boot camp.

“The ICT development team learned with the right tools, and delivered on quality, on budget, meeting the needs of the user, and ultimately, created standard practices for forward organisational thinking.”

The system, called Workbench, can change apps to meet how the [internal] customers want to be able to use it. This is also device specific so mobile versions can be set up differently.

“We've also been able to build in auditing from the ground. Which all came in very handy with GDPR! The operational dashboard is fully flexible, works to create reports and standard KPI data is available at the touch of a button for a full view of station workings, staff illness, etc.”

The ICT team has divided into three separate areas including delivery, development and, most recently, data architecture. The next steps include analysing data capture for a 'near real-time' delivery of service reports.

Harvey Durrant comments, “Alongside all of this transformation, the finance team were integral to understanding that the ROI approach to business cases has to accept that timelines for ROI may vary but ultimately the need for a certain development or programme may have other benefits that outweigh ROI. For this reason, finance has to absolutely be on board with the digital transformation from the very beginning.”

Understand that the finance team and ICT team need to work together for the cultural shift in an organisation to take place.

Harvey Durrant explains how the two blend, “For example, OPEX – the central revenue grant that is being cut as part of austerity across all public sector organisations. Developing in-house resource, by using capital reserves to reduce ongoing revenue commitment, DSFRS reduced ICT licensing OPEX costs by 15% over the course of the initial project and the next stage looks to double that saving. Every PSO can relate to that.”

Data science and the future of audit

The world's leading organisations today are data-driven businesses, depending more on the value of the data that they collect and use than the commodities or services they sell.

There are many examples, including Amazon, Facebook, Microsoft, Apple, Google and amongst other. For these organisations, data - and especially personal data - has become a critical and defining resource.

Public service organisations are becoming more data dependent too. It is data that enables productivity analysis, efficiency of practice, performance and risk control, as well as the delivery of more personalised service models and the possibilities of new commercial value from data.

With each new technology platform and smarter connected tools, data value increases, whilst becoming more distributed and so more difficult to track.

This is what data science is all about - the multidisciplinary blend of data management, inference and technologies to solve complex problems. Financial leaders and auditors must become skilled in the topic, to fulfil their financial stewardship roles in the future. This is particular important in PSOs where data complexity comes from the range and diversity of services, not just new technologies. It means a fundamental change in the role of finance as corporate risk assessors and strategic asset owners, requiring new tools, practices and skills.



We need to alter the long-term perception of finance from 'purse guard' to dynamic funding investor and risk assessor.

Andrew Burns, Director of Finance and Resources at Staffordshire County Council and Former CIPFA President

Technology can help finance and IT with challenges of data quality, data standards and often limited financial reporting functions in legacy applications.

With an increasingly distributed networking of systems and cloud services, critical data is now often highly distributed. This reduces, unnecessary duplication of data capture, storage and reuse, but it also makes it harder to track and monitor data flows and risks.

For example, data may be reused and shared to help to protect vulnerable people by looking at matches and patterns or to detect potential fraud. This will only increase as public services begin to adopt intelligent agents, (AI and robotics), when machines start determining how data should be shared and linked to meet individual citizen's needs with no or minimal intervention necessary.

In this complex data architecture, finance professionals and auditors still need to be able to check that value for money and that risks are being effectively managed. There will be a dependence on tools that can spot patterns in data sets and create sense out of these complex and distributed digital systems.

However, the idea that public services organisations will build big data 'pots' or 'hubs' have mostly proved to be too expensive to develop and maintain. They also do not always fit well with a model of a mixture of public and private cloud systems. What is needed is more of a virtual data 'hub' that unlocks the value of data held across individual applications, by using a mixture of common data standards, open APIs and data management tools centrally.

Such data management tools can operate across a range of both proprietary and open source systems to support auditors and finance managers to track assets and risks beyond core finance systems (see table on following page: Data tools to assist finance managers and auditors in complex systems).

This is particularly important for the public sector in managing the problem of so-called 'dark data' (unknown data), which comprises a significant proportion of electronic information held by most organisations. This 'dark data' represents risk and cost and is therefore of direct interest to finance leaders and auditors. According to a Veritas global survey in 2017, some 59% of data in UK organisations is 'dark data'.

Data tools to assist finance manager and auditors in complex systems

| | | | |
|--|---|---|--|
| Sharing data safely, for example using encryption and strong authentication. | Monitoring data flows in complex and dynamic systems, to track probity and risks. | Matching data, to create business insight and standard data formats. | Data testing, reducing the risks of error as well and cost or delays in systems release. |
| Fixing data quality issues which create risk, cost and lost opportunity. | Identifying where sensitive and personal data are held, helping with GDPR compliance. | Enforcing role-based security access to data to automate access responsibilities. | Audit trails and journals to ensure traceable decisions whether by people or machines. |
| Data interrogating and reporting tools for audits and managers. | Automated data risk analysis based on usage patterns and sharing. | GDPR compliance testing and identification and matching of personal data. | Fraud detection and data forensics tools. |

Furthermore, as criminals become cleverer in matching data and using automated tools to find vulnerabilities and target attacks, public bodies need to be equipped to keep pace. There is a need to track potential abuse or fraud in systems, as well as to protect sensitive data, resources and vulnerable people about whom data is held.

With growing public demands for stronger regulatory protection of personal data, for example the criticism of Facebook and Google and the recent General Data Protection Regulation (GDPR), public bodies more than ever need to demonstrate good data husbandry through audit and robust financial management.

Modern cyber protection techniques in distributed digital systems, from basic data access security to data handling, affects the way audit in which and financial controls are managed.

Audit teams need to be able to keep pace with these developments if they are to measure business performance, the effectiveness of financial controls and the value of assets and intangible risks. Without this audit assurance, it is not just the reputation and resources of our public institutions that are at risk, but the basis of public trust necessary for digital government.

Many PSOs are still relatively immature in terms of their data and information management skills and practice. The focus to date has been more on managing

structural change, efficiency through business process automation and modernisation of IT estates.

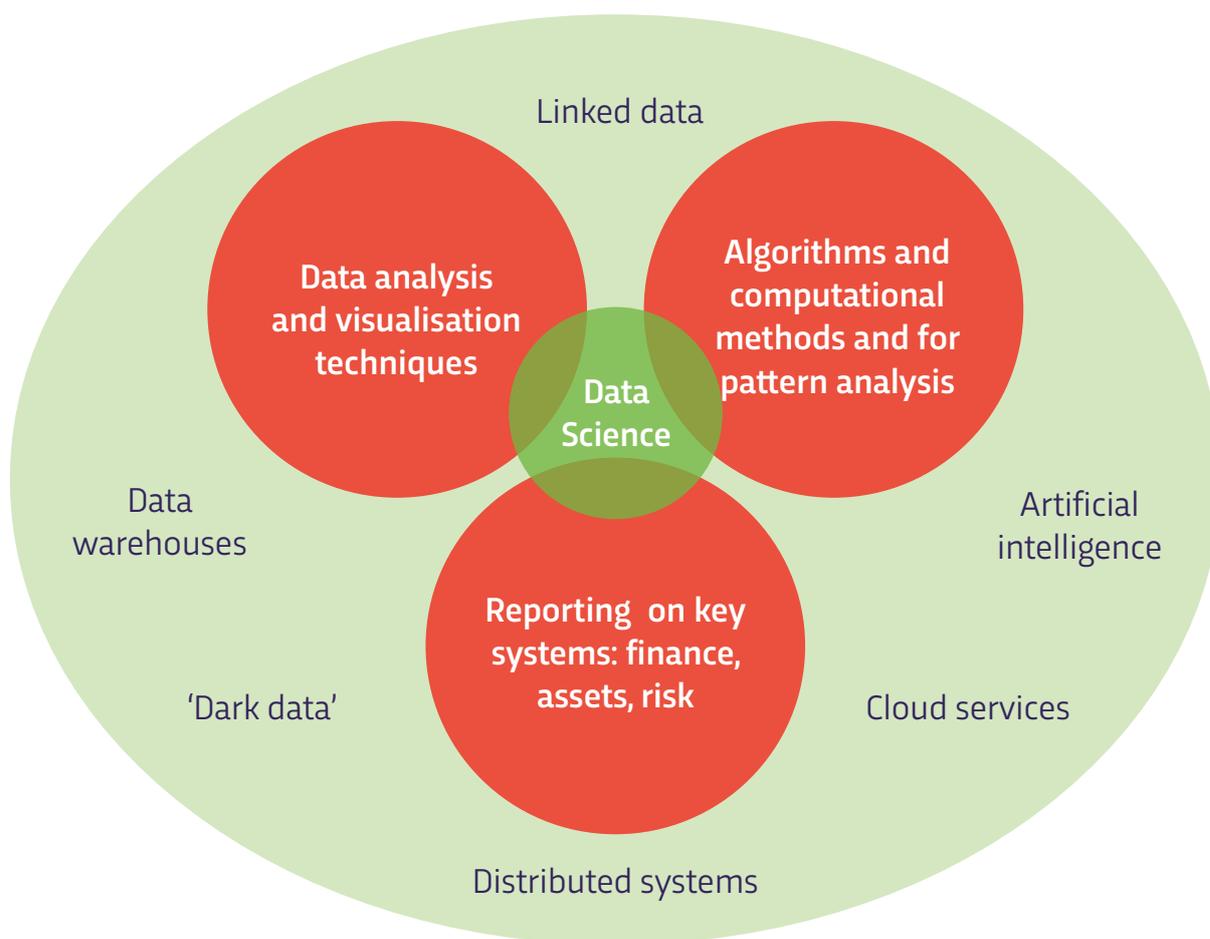
As a result, in recent years a range of new data roles has emerged, including the Data Protection Officer role, Strategic Information Risk Officers (SIROs), Caldicott Guardians (for health and social care), and of course Chief Information Officers (CIOs) amongst others. More recently, Chief Data Officers are appearing in the public sector.

Finance leaders need to work closely with these functional leads for data in ensuring the digital systems are safe and robust, with a 'joined up' approach to data and systems that in turn should make the task of systems audit somewhat easier. (See the data science objectives table on page 23).

The heart of the accountancy profession will always be about trust and assurance. Finance leaders in the future and auditors today need to understand how data science can be an important part of their skills in providing that assurance.

PSOs need to ensure that their finance professionals receive the training and skills they need in data science, and in specialist areas such as systems audit. continuous professional development (CPD) and training needs to be reviewed, from apprenticeship level experience and support, to senior practitioners in audit and financial management able to keep pace with technological change.

Data science objectives



Commercial public services

Public service organisations are all seeking ways to make their increasingly constrained resources go further, to ensure financial sustainability and to protect vital services:

- Absorbing cuts (such as stopping activities to save money)
- Managing demand levels (through automation, self-service in improved data insights)
- Making efficiencies (such as continuing to streamline business processes)
- Increasing workforce productivity (by maximising value of time invested in outcomes)
- Growing revenue (by selling things, maximising income owed and securing new grants).

Many public institutions such as local councils are innovating to find ways to maximise income collection for statutory services as well as exploring the potential for increasing revenue from non-statutory services. This includes crowdfunding of civic programmes (where, if enough public money is raised, councils will provide matched funding for community chosen projects).

Typical areas for council sold services are car parking, property management, registration services, housing repairs, and leisure services, but a wide range of new services are being introduced where value can be added to existing services for a fee. Luton Borough Council is using its ownership of Luton airport to drive commercial initiatives, for example.

Moreover, in the wake of the collapse of Carillion and problems more generally with public service outsourcing, including in IT, many public service organisations are revisiting their supplier contracts and commissioning arrangements, or even bringing service back in house to operate as semi-commercial business units. There also continues to be a steady growth in shared services, usually based on selling services to another public body on a 'not for profit' basis.

Those that fail to get this right, risk new public liabilities or creating business services (or shared service models) that turn out to be unsustainable in the longer term. This presents new challenges and responsibilities for finance teams in the public sector, especially where commercial activities are becoming a mainstay of public sector funding. In South Hams and West Devon district councils, for example, 75% of the organisation workforce is expected to work in a shared trading company.

The new roles for finance in supporting commercial teams and their trading activities have been examined in detail in a recent report by Localis (Commercial Councils: The Rise of Entrepreneurialism in Local Government).

There is likely to be taxpayer's money at stake and wasting significant resources on speculative entrepreneurial activity without the management controls and experience may be challenged by both the press and politicians. Finance teams must be involved in managing risks to public money and in ensuring that core services and public service ethos are not compromised or deprioritised by new and often exciting 'commercial' activity.

Determining the right governance and the legal basis will also be important, and few public services would claim to be entirely commercially astute. See box below: Broader role for finance leaders in commercial public services.

Broader role for finance leaders in commercial public services

Governance and controls

Setting up appropriate governance models for commercial activity, including contract and performance monitoring.

Value of assets

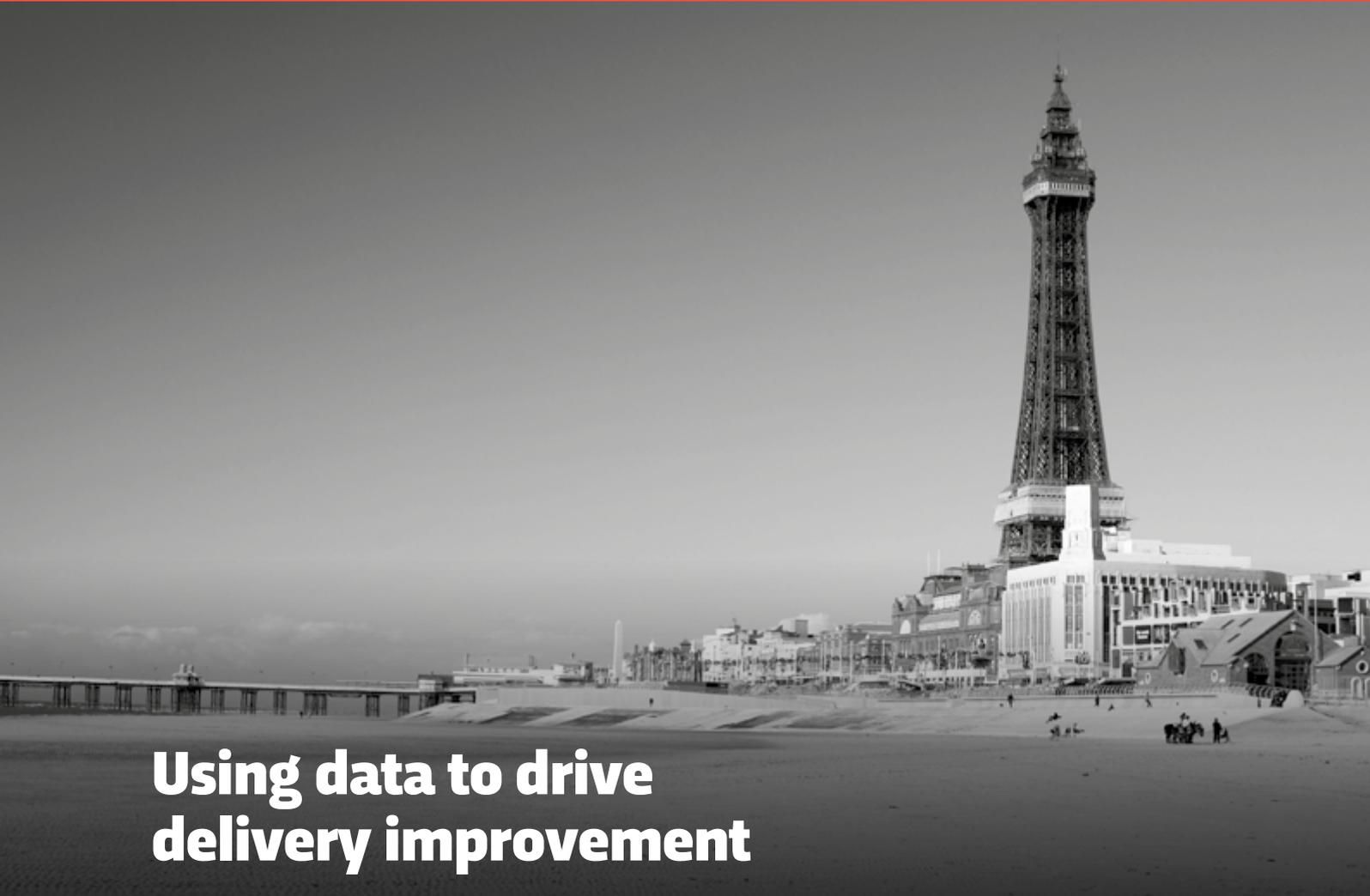
Identifying, tracking, protecting assets, and unlocking the full potential value they represent.

Risk management

Creating the right culture for risk in a commercial setting – not too averse, but mindful of public service interests.

Investment management

Taking a longer term view of investment, but ensuring rigour and transparency in the return on public funds invested.



Using data to drive delivery improvement

CFO Insights enables authorities to gather and analyse their data so that resources can be allocated effectively, opportunities for savings can be realised and medium-term planning can be more strategically driven.

Blackpool Council has many social and financial challenges but has a solid base in tourism heritage and infrastructure. The council has a clear vision for the area to be 'The UK's number one family resort with a thriving economy that supports a happy and healthy community who are proud of this unique town'.

Reports from a peer review held in 2015 and an internal audit in 2017 showed that the council plan was too focussed on a narrative that was hard to measure against performance. Recommendations were made to have more robust performance management and strategic plans for services.

As a result the council has been working to establish a framework which allows success to be measured against three areas:

- delivery
- satisfaction and perception
- cost

Using CFO Insights the council looked at data on spend on all service areas against reported outcomes. The exercise established a clearer understanding about where spend had a direct impact on performance and where factors other than spend were having an impact. This has enabled the council to make informed funding decisions.

Blackpool is revising the council plan to incorporate performance management. This will involve looking at data on outcomes to fully understand and drive the success of their vision.

Exploring future digital trends and how they impact the public sector

Key Message:

The pace of technology development is driving public service innovation but carries new risks and is rarely a 'quick fix'. Finance leaders need to be equipped to judge when and how new technology offers true business value which outweighs risk and cost of change.

It is not always easy to predict when new technology is ready for adoption. In the public sector, which tends to be cautious about technology risk, there can appear to be reluctance to adopt new solutions such as cloud, and retention of 'tried and tested' legacy IT, even if these are becoming costly constraints.

Managing the hype

Pressures from the financial constraints in the public sector, an increased public expectation of digital delivery, and new technology promising efficiency and productivity benefits, means that the public sector is feeling pressure to adopt new technology.

Whilst PSOs struggle with some outdated technologies, they are also being offered a barrage of new technology possibilities to explore and embrace. In the rush to adopt these in the name of digital transformation, it is easy to lose sight of real ambitions of technology-enabled progress, which is more about sustainable services which are better designed for needs, efficiency and productivity, than it is about the successful deployment of innovative IT.

The challenge is to establish the relative priority and value of new technologies possibilities, their risk and potential, and then to adopt only those that offer timely value, in terms of addressing current and anticipated business needs. It also requires maturity in change management and service redesign, since typically the benefits from new technology deployment lie in the redesign of services and working practices.

Finance leaders need to ensure appropriate challenge and due diligence, without being viewed as unduly risk

averse or a break on innovation. Moreover, whilst some PSOs have the appetite, capability and capacity for embracing leading edge technology, others will rightly wish to 'wait and see', learning from others and the project failures.

Out of a long list of target technologies, the research conducted by Eduserv and CIPFA identified some as being of particular interest for finance leaders. These were the technologies which do three things:

- Allow organisations to break the chains and costs of legacy IT and so adopt new ways of working more quickly and effectively. Cloud services (both public and private) fall into this category.
- Improve the ability to create a more sustainable financial base, such as delivering efficiency, productivity, agility, lower risk or creation of commercial income opportunities. Data science, and modern business tools fall into this category.
- Support the wider role of financial professionals in helping their organisation to exploit the benefits of digital working, whilst managing the risks from new technologies. A range of specific tools fall into this category.



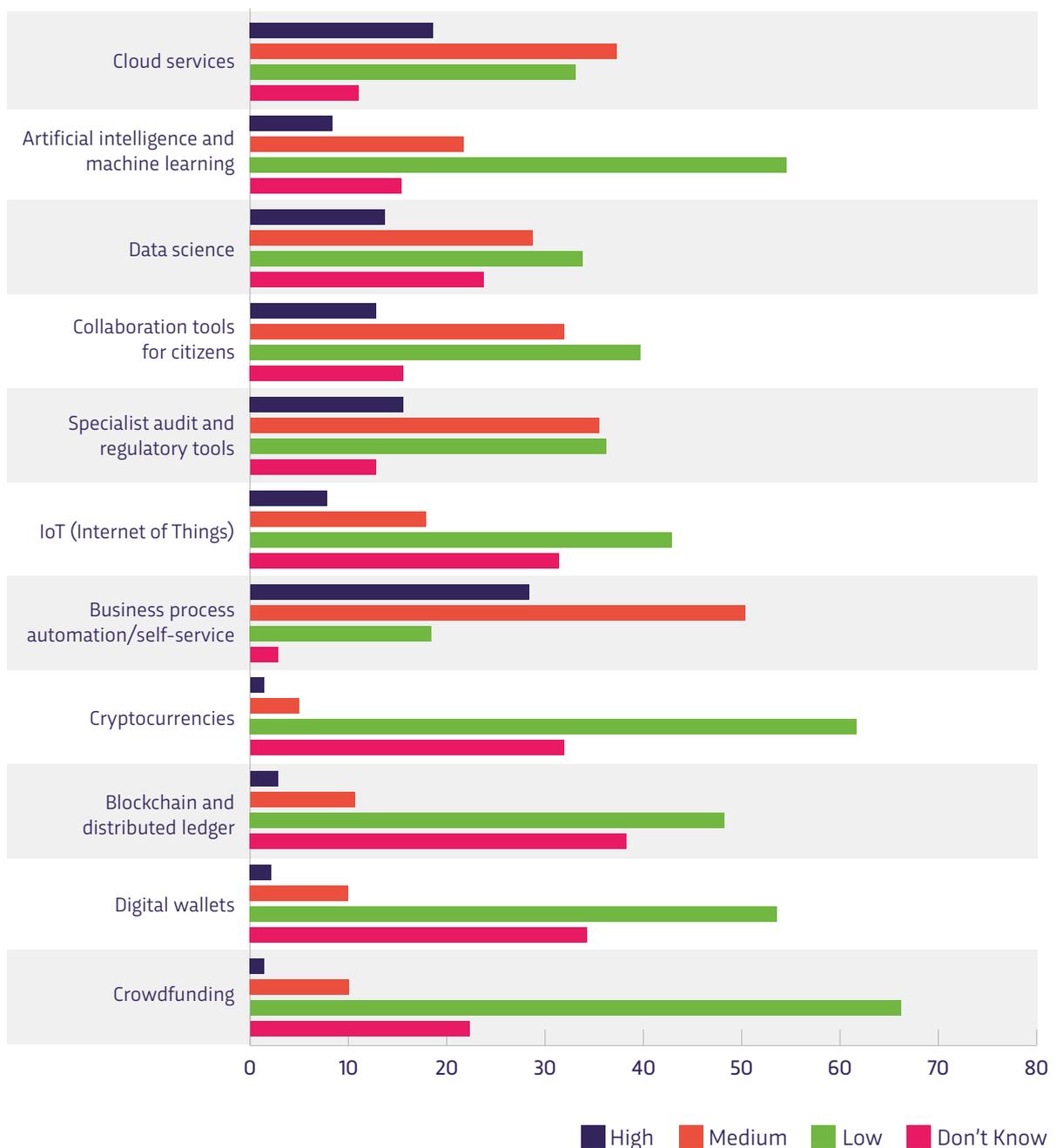
We are looking to replace costly, traditional business operations software with a more agile, accessible GovTech that addresses our business needs.

Ursula Gamble, Head of Finance and Transformation at Waltham Forest Borough Council

The finance leaders we spoke to were cautious about not over-selling some of the newer technologies, tending to be pragmatic in challenging the promises of IT investment and resisting hype from vendors. They would tend to start with user need and evidenced-based financial returns, not with the technology, however attractive its potential.

This is not surprising, given the ROI in many IT-driven projects in the public sector has not always lived up to expectations. Our research indicated that finance professionals were more comfortable when benefits can be defined, tracked, measured and delivered, more readily achieved in business cases for cloud computing, but less so in areas such as robotics and Blockchain.

Rate the following new technology areas in terms of their value in your opinion in financial planning and management:





Spotlight on new digital approach to managing systems of HR and finance, Staffordshire County Council

Alongside the council's size and shape changing significantly, Staffordshire County Council (SCC) faced a number of increasing costs to retain SAP to support the core delivery. An 80% increase, from £1.6m to £2.9m, in annual running costs provided a financial burning platform.

The strategy team used the opportunity for digital technologies to enable 'smarter' working to support its continuing journey as a commissioning authority. The goal was to instil a new process that was easy to use, allowing access remotely, to support flexible, efficient working for the system users – finance staff, managers, budget holders and employees.

The solution came in the form of three actions. First, decommission SAP. Next invest in 'fit for the future' finance and HR systems that allowed remote and mobile access. Finally, ensure smooth delivery of the new systems whilst replacing SAP, making significant savings.

This was treated as a major organisational and cultural change management project rather than just an IT change. In order for a smooth process and transition, a governance board, project management and user groups were created, and SAP was replaced with new systems for the management of finance and purchasing, HR admin and payroll.

All departments were affected and the SAP contract termination date (ending December 2017) was the deadline.

The result? The new systems, Integra for finance and I-Trent for HR were successfully integrated in 2017. The transition process took around six months to complete and it is estimated that the savings are currently £0.5 million per year. That represents 23p for every pound today.

Rob Salmon, Deputy Director of Finance states, "Taxpayers money is now well spent, and we have more data readily available to make decisions. This exercise allowed us to adopt new practices and stop using old processes.

"We created a champion network in order to deliver change successfully across all areas of business. The champions support the programme to refine the solution to ensure it is fit for purpose and engage with their departments.

"Ultimately moving to this approach worked within a necessary organisational cultural change as a result of the adoption of a business-wide digital strategy as well.

"The results were beneficial at every level, including a significant contribution to in addition to improved agile working. The shift away from SAP also delivered on numerous commissioning priorities. With improved budgetary control and increased productivity on higher priority tasks, the new system brought SCC to the next level in terms of their digital transformation allowing the new Software as a Service (SaaS) approach to their HR system, increasing employee flexibility and saving money."

Cryptocurrencies and blockchain

Blockchain is a recent technology that is mostly associated with cryptocurrencies, though its application is much wider. Finance leaders involved in this research indicated an awareness of both cryptocurrencies and blockchain but were sceptical about their value today.

A cryptocurrency, such as Bitcoin, is a digital currency in which complex encryption techniques (Blockchain) are used to regulate the generation of units of currency and to verify the transfer of funds, operating independently of a central bank (i.e. they are 'peer to peer').

A Blockchain is a way of securely keeping track of all the transactions happening on a decentralised network, allowing everyone connected to see the same copy of the database (or ledger) at the same time, so that everyone agrees a shared history of events that cannot subsequently be changed or edited.

Enormous processing power is needed to maintain this complex cryptocurrency network and to confirm transactions. This is achieved by linking computers together and by becoming part of the network, you become a 'miner', donating computing power and in return receiving currency tokens.

According to a survey published by MarketInvoice in September 2017, 21% of businesses expect cryptocurrencies to feature in their payment transactions over the next 12 months, so why not the public sector? It could be argued that, public services should be making modest, if speculative investments of public funds in the face of severe funding limitations.

However, public sector finance leaders are clear: this is too risky and uncertain, and it would be irresponsible to invest public funds in such speculation. It would also not meet the strict criteria laid down for the management and investment of public funds. It is also something that the Financial Conduct Authority is concerned about and is considering what regulatory action may be required.

Blockchain

Blockchain as a technology in its own right has found growing interest across the public sector. A variety of public service organisations are running tests and trials looking at the potential of blockchain to help to solve complex problems, especially where secure and trusted records are involved. Blockchain-as-a-service is now an offering available to public sector organisations through the GDS Digital Marketplace on G-Cloud.

Examples of early testing include areas such as e-voting, payment transactions, charity donations, land registry records, integrated health records and sending sensitive data such as medical results where transactions, data linkages and the sharing of information is complex and requires careful validation. Today the level of manual intervention required is high, and arguably subject to error and significant administrative costs – this is where in the future Blockchain may help.

There are still barriers to Blockchain solutions in the public sector. These include the scalability, skills required to design and deploy systems, a lack of established standards, performance at scale and the environmental concerns about the exponential growth in processing power (and therefore electricity) necessary to sustain it. A recent SOCITM report on this topic, Blockchain: The Background, Basics and Potential for Local Government Services, examines the research in more detail.

Perhaps the biggest potential use for Blockchain in the public sector lies in personal records management, such as health and social care records, payments and voting where strong authentication matters. These depend on a common identity number and this is not likely to happen in the UK given strong public, press and political views about this. The result is multiple ID numbers: driving licences, NHS number, electoral number, national insurance number and many more. For now, other technologies are likely to suffice.

Therefore, whilst Blockchain offers potential for the public sector, and early experimentation is welcomed, finance leaders in this research were clear that Blockchain still has to prove its value and should be only trialled in small scale projects. One delegate from the round table quipped, "If we want to accelerate digital public services, let's get basic access and broadband availability fixed first!"

Cloud computing

Cloud computing is a growing way in which PSOs can access digital service delivery platforms and provides access to newer technology function. It promises to free public services from some of their IT legacy constraints, including outdated outsourcing contracts that are proving expensive and inflexible.

Despite the potential for cloud computing to form a cornerstone of digital transformation supporting infrastructure, PSO adoption is still slow, and more needs to be done to support cloud use across the public sector in ways that deliver value, reduce costs and contain risks.

To adopt cloud and especially 'public cloud' (i.e. cloud services which are both off-premises and 'out of the box') PSOs need to ensure that they have the capability to undertake the due diligence necessary regarding access, security and data management.

This is especially true for SaaS, where personal data is held in cloud systems. Some finance managers as well as IT managers are nervous about this, since it requires time and potentially external support to re-architect out of date IT infrastructure, police and support to safety take advantage of the benefits of public cloud solutions.

“

I've seen a number of organisations publicising that they have moved their ICT to the cloud, but I don't think that, setting an objective of being fully on cloud infrastructure is important in and of itself. I think we need to be clear about how cloud services are helping us to deliver better and more cost effective services for our residents and businesses.

Rob Miller, Director of ICT at Hackney Council.

The main task in looking at cloud, is to design from the point of view of the service user and ensure that the promised benefits in terms of internal business value and costs savings are measured and delivered – a key role for finance teams. This is particularly important given some perceived challenges in justifying increase IT revenue spend on cloud to reduce capital costs.

Cloud models are only going to increase, since many new services will be optimised in this way – including data management, artificial intelligence and many other newer technology solutions for internal and external service provision. Since the longer term value lies in off-premises delivery (public cloud) public services need to ensure the risks and costs are effectively accounted for. That requires significant finance support, not just IT leadership.

Machine learning, artificial intelligence and robotics

Although the idea of Artificial Intelligence (AI) has been around for many years, it is only recently that its application has taken root in the public sector. Most AI applications today are based on voice recognition and automation, using systems such as the Alexa systems from Amazon.

In Aylesbury Vale District Council, for example, automated customer services and machine learning are being used to halve the time and cost of dealing with residents' service requests, and in Enfield Borough Council 'Amelia', an avatar, is supporting their customer services.

These new tools are leading to greater automation and machine intelligence, linking services together based on voice requests. In Hampshire County Council for example, it is being used in social care to help to define and deliver services based on needs. And in central government, HMRC and the DWP are exploring the use of software defined 'robots' to automate volumes of common, repeatable transactions, with no coding required – Robotic Process Automation (RPA).

RPA solutions use machine learning and AI to process common transactions, whilst dealing with exceptions and linking to more subjective service options (see diagram: How automation supports the delivery of public services on page 31).

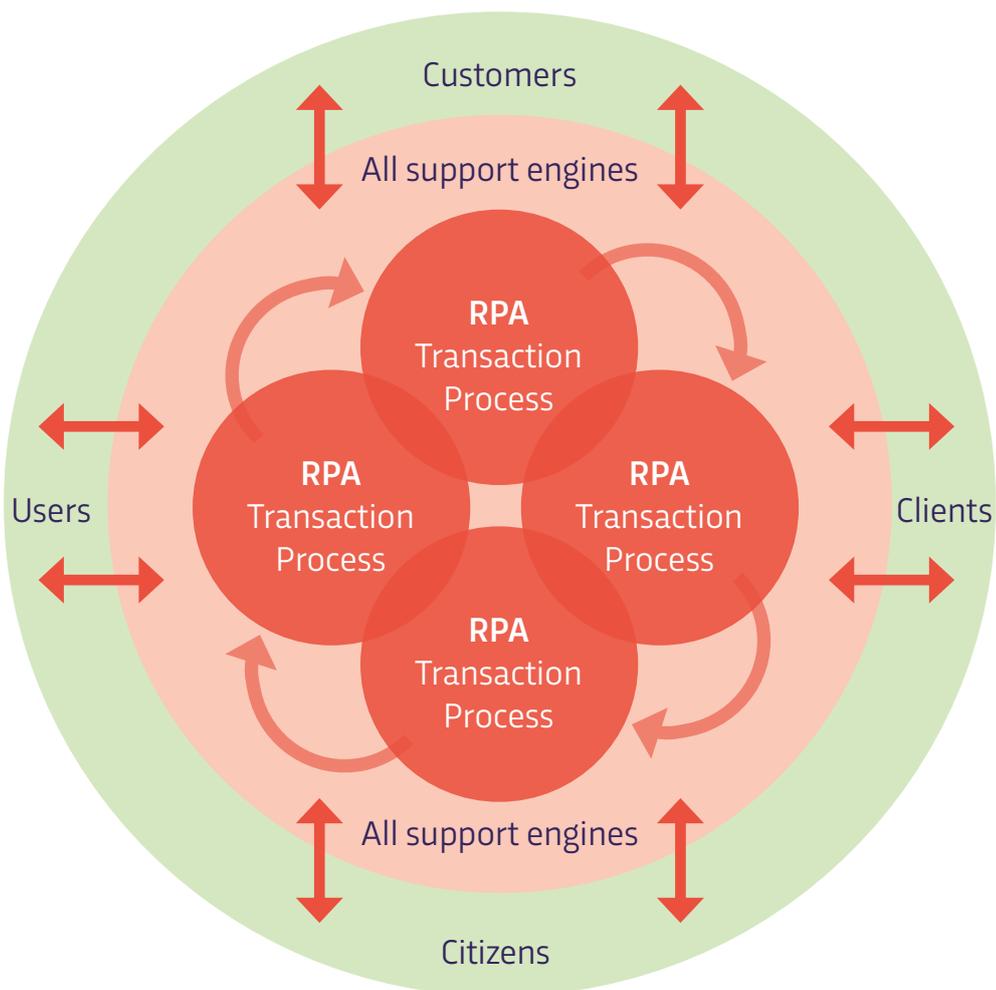
In payroll services for example, machine learning and RPA could offer a range of extended services, perhaps based on pension contributions, leave allowance, spotting potential fraud or errors. Links to HR processes could add further value, such as planning career breaks, maternity leave advice, career development or even role-based security. These offer significant value to public services, their clients, patients, customers and staff. They also create complex auditing and financial management challenges, and finance leaders need to be involved in the early stages of design and planning.

The advent of cloud computing and RPA together allows interrogation and machine intelligence to be wrapped

around common processes, challenging the value of traditional Business Process Outsourcing (BPO) models. It also offers potentially sophisticated AI agent support in finding the service or the help needed. It can also automatically detect problems and thereby enable appropriate and timely intervention or avoidance of fraud.

In health services, for example, it will soon be possible to deal with an intelligent automated agent to help to guide you to the support you need, advise on self-help and to book an appointment automatically based on urgency and location. An avatar GP agent can be always available and instantly search millions of data sources

How automation supports the delivery of public services



to help to diagnose and potentially begin to prescribe solutions (and their relative cost), albeit with the support of a medically qualified doctor to hand.

This is not just about self-service transactions, but adding intelligence in how these transactions and related services are provisioned, to meet and to even anticipate an individual's needs and preferences:

- Reflecting a history of transactions to deliver a more personalised service
- Ensuring intuitive security and access, based on history and pre-defined security protocols
- Linking services together based on typical activity for a cohort of users and the nature of the individual requirements
- Anticipating issues, predicting outcomes and minimising misuse – intentional or unintentional.

The point here is that, assuming systems have appropriate safeguards and security, AI as a service is much faster, more accurate, personalised and efficient than today's practice of manual intervention and 'hand-offs' between PSO professionals. The barriers to wider adoption are therefore more based on perception of users and professionals of dealing with machines, than the reality of technology risks. This is about using technology to build better services designed around the individual, not about removing human interface altogether.

Automation through AI can also be used in areas such as registration of births, deaths and marriages, booking appointments, paying for things such as council tax and fines, getting the right license for a business or activity – in fact, just navigating the 700 or so services provided by a typical local council or the complexity of a tax return.

AI may have a significant impact on jobs in the public sector. Deloitte predicts that 50% of traditional roles will disappear through automation in the coming years.

Many see this as physical 'robots' taking over manual roles. But in practice, most robots will not look like humans in any form, but simply be 'code in a machine', providing information or digital services, such as RPA. Others will provide the interface between machines and actions, such as in driverless vehicles.

These trends present significant challenges for finance leaders:

- How to account for the value of these automated roles and the savings they offer
- How to manage the risks and liabilities which emerge from automation – including in the finance function
- The impact on professionals' jobs, where machines can make decisions that replace judgements made today by experts (such as qualified accountants)
- Audit implications to avoid the risk of fraud or errors being made.

To maintain public trust, digital design of AI solutions need a 'safety valve' for when mistakes occur (which they will), so they can be corrected by human intervention, with alert systems in place when outliers occur. Risk of error can also be reduced with a high focus on data quality, and by codesigning automated processes alongside the people who will use them, not in isolated government project teams.

Only 1 in 10 finance professionals say finance software tools allow teams to do more for themselves without central finance involvement.

Despite the challenges, robots and AI all present an exciting future for public services, blending intelligent software engines with human talent, working together in the interests of citizens and adapting constantly by automated systems learning. These are benefits as significant as the direct financial savings which can certainly be secured.

PSO finance leaders need to understand how to harness the value and manage the risks of AI, machine learning and robotics, especially where these are related to financial transactions.

Addressing finance skills, coaching and training

Key Message:

Finance leaders in the public sector need to position themselves as ambassadors and champions for digital development, whilst retaining their strong professional role as custodians of best practice in managing corporate risks and assets. This requires a blend of financial, business and 'softer' leadership skills.



Losing the classroom element, allowing finance to train via distance learning, through a shared CIPFA course perhaps, would help us gain value and share experience.

Owen Campbell, Senior Finance Business Partner at Stafford County Council.

New finance responsibilities in a digital world could be viewed as additional overheads on already overstretched finance professionals in the public sector, who still need to carry out their traditional accountancy tasks.

In practice, this new challenge can be mitigated by greater automation and decentralisation of some of traditional finance activities, replacing traditional operational accountancy roles for more strategic finance activity. New training and skills can also assist in preparing finance professionals for the future dominated by digital systems and distributed data-driven services.

However, it was noted in our research that whilst modern technology can lead to greater financial automation, self-service and reduced operational overheads, only 12% of our survey respondents felt this was true in finance.

In general, finance systems had not significantly reduced operational finance tasks or released capacity for a greater proportion of time on strategic activity. Fewer than one third of respondents reported any reduction in the size of central finance teams.

New skills for finance professionals, are particularly important in the areas of data science and audit, but also in understanding and nurturing an appropriate risk culture and management a modern, digitally driven operating model based around growing automation, AI, distributed cloud services and self-service.

Training is as important for new entrants to the profession as it is for experienced finance leaders now involved in the design and leadership of complex and largescale digital transformation programmes. It is also likely to be delivered in a wide range of ways beyond the classroom in future.

For new entrants to the profession, the challenge will be also where traditional roles will gradually disappear as finance functions become automated, and so 'on the job' experience is limited. New ways of learning need to be introduced, using some of the modern EdTech approaches.

CIPFA has a role in supporting PSO finance professionals in CPD, mentoring and coaching, apprenticeships schemes which anticipates digital development. In this respect the research indicated that neither CPD nor finance standards and regulations are keeping pace with digital trends in the view of practitioners.

In our survey, finance respondents noted that only limited investment in skills was currently taking place, with over two thirds of PSOs reporting dependency on external specialists to help support digital development. Whilst few finance leaders said would class themselves as digital experts (14%), they recognise the importance of digital change and digital strategy, and therefore the need for greater investment in internal skills.

Equipping finance professionals to play a major role in strategic business planning and in wider resource management that arises from digital change will not only improve the outcome of digital programmes today but manage the on-going risks and opportunities in the future.

Our research indicated that 58% of finance leaders appear not involved in the digital planning in their organisation, and nearly a third are not even aware whether their organisation has a digital strategy. This may reflect a lack of skills or wider awareness of the potential role of finance leaders in digital programmes.

Technology is changing how the finance sector works, both in terms of opportunities and risks. In the private sector, new IT platforms are being used for investment, peer-to-peer lending, and financial management tools are challenging the domination of traditional big finance systems and Enterprise Resource Planning.

In the public sector, machine learning, robotic financial advisors, and artificial intelligence engines promise to automate the analysis of financial data, to take decisions about resource allocation and replace some traditional accounting functions.

These trends are making slow progress in a public sector focussed on downsizing and cuts, but change is happening. Some public sector organisations are adopting crowdfunding technologies and services, allowing the public to choose where local taxes should be spent in communities, and many are becoming



With no digital strategy, customer facing services can be slow to change and internal digital change can be even slower.

Peter Timmons, Finance and IT Director of 10 local authorities.

more commercial in their activity, using digital solutions to define new services that secure new revenue streams. Others are introducing AI agents in contact centres and looking to machine learning to take decision about resource allocation and service priorities for citizens.

Arguably, finance leaders in the future will need three types of skill:

- Traditional finance skills and experience
- Deep digital understanding, especially in areas such as data science and AI
- Broader business skills for strategic and business planning, advocacy and change leadership in a digital operating model for PSOs.

It is important for PSO finance teams to strike a careful balance between a cautious approach to investment, as funding is tight and public service scrutiny is high, with the potential value of digital investment to unlock productivity, efficiency and service improvement. It would be easy otherwise for finance as a function to be perceived as a blocker to innovation and new ways of working, because of perceived the risk (or problems in defining risk).

Our research found that only half of finance professionals believe that digital risks are well enough understood, quantified and managed in their organisation. Again, this would imply a role for finance leaders in being proactive in helping their organisation to do this better.

In conclusion

PSOs in the vanguard of digital developments will involve their finance leaders at the very heart of digital programme management and wider transformation – from planning to execution.

To do this, our research shows that finance professionals see a priority in forming a partnership with IT leaders and the corporate leadership team, with the CEO taking overall digital control. They need a wide mix of skills, training and experience to do effectively.

A period that has been mostly focussed on business process re-engineering for greater productivity and efficiency, is now becoming an era of data and information science for the public sector. This will have a significant impact in areas such as audit, accounting and financial management, in harnessing power of predictive data analytics tools to link together multiple sources of data and intelligence. Digital methods and better data offer new possibilities for medium and longer term financial planning, as well as improved resource control and risk mitigation.

Inevitably there will be variations in the extent to which organisations are ready for digital change, and some PSOs will have a greater appetite for risk than others. The digital leaders will be more risk tolerant, since digital development brings with it uncertainty by its nature. The risk culture and the style of executive and political leadership impacting digital ambition will be heavily influenced by finance leaders.

Whether finance professionals are directly leading digital programmes or supporting others in doing so is less critical than understanding the digital journey and its implications for the organisations as a whole and the finance teams in particular. That is a critical skill for the future.

Methodology

This research was conducted between January and May 2018. The qualitative research is based on the responses of 230 surveyed finance professionals. This was supplemented with:

- qualitative interviews with ten public sector finance professionals from a range of PSOs in size and areas of service delivery
- two round table discussions
- professionals input from a steering group of CIPFA experts
- industry experts from Eduserv and members of Eduserv's Executive Briefing Programme
- industry analysis

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